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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/942,120	08/30/2001	Minoru Hashida	381AS/50347	6937

7590 08/28/2003

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EXAMINER

MELWANI, DINESH

ART UNIT	PAPER NUMBER
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3677

DATE MAILED: 08/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/942,120

Applicant(s)

HASHIDA ET AL.

Examiner

Dinesh N Melwani

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 13-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 13-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Acknowledgement of the applicant's submission of:

Amendment B, which cancelled claims 11 and 12 and added claims 13-20, filed on 6/9/03.

Extension Of Time (2 Mos.) filed on 6/9/03

The aforementioned items have been note and officially inserted into the application.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Pauler (U.S. Patent No. 5,642,889). Pauler discloses a seal mechanism as claimed; wherein said seal mechanism comprises a retaining member (14) having a cylindrical portion (15) and an annular surface portion (16) in cooperation with a sealing member (1) (i.e., the rubber that surrounds the retaining member (14)). The annular surface portion having an inner periphery facing a sealing surface spaced therefrom with a gap at an innermost peripheral portion thereof, a flexible member (8) molded in one piece with the retaining member and having a flexible tip to perform a sealing function such that under the pressure of the pressurized fluid the flexible member is pushed against a pressurized-fluid side surface of the annular surface portion including an edge

portion of the retaining member and a stress reduction mechanism (A in Fig. 1) for reducing the stress generated in said flexible member constituted by a corner having a predetermined radius at the edge portion of the inner periphery of the annular surface portion of the retaining member, wherein said corner is located within said flexible member in a side thereof to which the pressure of the pressurized fluid is applied, see Abstract. In regards to claim 5, Pauler's stress reduction mechanism (A in Fig. 1) is constructed such that said flexible member has been removed from the inside corner of said retaining member.

3. Claim 10 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Villanyi *et al.* (U.S. Patent No. 5,009,435). Villanyi discloses a high pressure fuel pump assembly as claimed; wherein said assembly comprises a reciprocating plunger (10), and a cylinder which is slip-fitted with the plunger and in which a variable-volume pressurizing chamber is formed with the reciprocating motion of said plunger, wherein said fuel pump is provided with the seal mechanism at a periphery of the plunger at which the seal mechanism seals two fluids of a pressurized fuel and a lubricant oil mutually at a sealing surface of the plunger, the seal mechanism comprising a pressurized fuel sealing portion and a lubricant oil sealing portion, with both the sealing portions, a sealing member pushable against a sealing surface by a pressure of the pressurized fuel being provided at a pressure-receiving side edge portion of a retaining member in the pressurized fuel sealing portion, and the pressure-receiving side edge portion of the inner peripheral portion facing the sealing surface of the pressurized-fuel sealing portion has a surface (A in Fig. 2) configured as a stress-relieving mechanism to relieve a contact stress with the sealing member and is formed at a pressure-receiving side edge portion of an inner peripheral portion facing the sealing surface of the retaining member, see Figs. 1-2 and col. 3, lines 40-69.

In regards to claim 15, Villanyi's stress reduction mechanism (A in Fig. 2) is constructed such that said flexible member has been removed from the inside corner of said retaining member.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pauler (U.S. Patent No. 5,642,889). Pauler discloses a seal mechanism substantially as claimed but fails to disclose that the disclosed stress reduction mechanism is constructed such that the gap between the innermost diameter of said retaining member and the outside diameter of a shaft is set to 0.9 mm or less. The applicant is reminded a change in the size of a prior art device is a design consideration within the skill of the art. In re Rose, 220 F.2d 459, 105 USPQ 237 (CCPA 1955). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make said gap as small as possible to reduce the amount of deformation the flexible member undergoes. In regards to claim 8, the applicant is reminded that duplicating the components of a prior art device is a design consideration within the skill of the art. In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960).

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pauler (U.S. Patent No. 5,642,889) in view of Otto *et al.* (U.S. Patent No. 6,092,637). Pauler discloses a seal

mechanism substantially as claimed. However, Pauler is silent toward the dimensions of the stress reduction mechanism. Otto discloses that it is old and well known in that art that the reduction of stress increases in proportion to the size of the radii, col. 2, lines 5-6. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teachings of Otto, in regards to a stress reduction mechanism having a curved surface with a radius of curvature equal to or larger than 0.1mm, to maximize the ability of Pauler's stress reduction mechanism.

7. Claims 4, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pauler (U.S. Patent No. 5,642,889) in view of Nagasawa (U.S. Patent No. 4,623,153). Pauler discloses a sealing mechanism substantially as claimed, wherein said mechanism comprises a flexible member. However, Pauler does not expressly disclose said flexible member being constructed from a material being resistant to penetration of the sealed fluid, having a low-coefficient of friction as well as a swelling rate of 30% or less. For the purposes of examination and as admitted by applicant, fluorine-based rubber is considered to possess a swelling rate of 30% or less, see the Detailed Description of the Preferred Embodiments, page 14, lines 11-13.

Nagasawa discloses a sealing mechanism having a flexible member (i.e. sealing lip (4)) which maybe constructed from a synthetic resin such as polytetrafluoroethylene (PTFE), wherein the PTFE, through modification, may be afforded a low coefficient of friction and made resistant to penetration of the sealed fluid, see column 4, lines 40-55. It would have been obvious to one having ordinary skill in the art at the time the invention was made, to utilize the teachings of Nagasawa, in regards to the use of the well-known material PTFE in construction of said flexible member, to modify Pauler, such that any over-stressing caused by expansion of the sealing

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member is prevented. Furthermore, it would have been obvious to utilize the teachings of Nagasawa, in regards to the modification of PTFE, to provide Pauler's sealing mechanism with increased seal-ability as well as a lower-coefficient of friction, thereby increasing the service life of the sealing mechanism.

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pauler (U.S. Patent No. 5,642,889) in view of Wada *et al.* (U.S. Patent No. 5,595,697). Pauler discloses a sealing mechanism substantially as claimed, wherein said sealing mechanism comprises a retaining member. Pauler does not disclose said retaining member having a plurality of through-holes. Wada discloses a sealing device that teaches the use of reinforcing ring (106) having a plurality of holes (107), see column 1, lines 30-35. It would have been obvious to one having ordinary skill in the art at the time the invention was made, to utilize the teachings of Wada, in regards to a plurality of holes on the retaining member, to facilitate securing of said of member.

9. Claims 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Villanyi *et al.* (U.S. Patent No. 5,009,435). Villanyi discloses a seal mechanism substantially as claimed but fails discloses that the disclosed stress reduction mechanism is constructed that the gap between the innermost diameter of said retaining member and the outside diameter of a shaft is set to 0.9 mm or less. The applicant is reminded a change in the size of a prior art device is a design consideration within the skill of the art. In re Rose, 220 F.2d 459, 105 USPQ 237 (CCPA 1955). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make said gap as small as possible to reduce the amount of deformation the flexible member undergoes.

10. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Villanyi *et al.* (U.S. Patent No. 5,009,435) in view of Otto *et al.* (U.S. Patent No. 6,092,637). Villanyi discloses a seal mechanism substantially as claimed. However, Villanyi is silent toward the dimensions of the stress reduction mechanism. Otto discloses that it is old and well known in that art that the reduction of stress increases in proportion to the size of the radii, col. 2, lines 5-6. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teachings of Otto, in regards to a stress reduction mechanism having a curved surface with a radius of curvature equal to or larger than 0.1mm, to maximize the ability of Villanyi's stress reduction mechanism.

11. Claims 15, 17, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Villanyi *et al.* (U.S. Patent No. 5,009,435) in view of Nagasawa (U.S. Patent No. 4,623,153). Villanyi discloses a sealing mechanism substantially as claimed, wherein said mechanism comprises a flexible member. However, Villanyi does not expressly disclose said flexible member being constructed from a material being resistant to penetration of the sealed fluid, having a low-coefficient of friction as well as a swelling rate of 30% or less. For the purposes of examination and as admitted by applicant, fluorine-based rubber is considered to possess a swelling rate of 30% or less, see the Detailed Description of the Preferred Embodiments, page 14, lines 11-13. Nagasawa discloses a sealing mechanism having a flexible member (i.e. sealing lip (4)) which may be constructed from a synthetic resin such as polytetrafluoroethylene (PTFE), wherein the PTFE, through modification, may be afforded a low coefficient of friction and made resistant to penetration of the sealed fluid, see column 4, lines 40-55. It would have been obvious to one having ordinary skill in the art at the time the invention was made, to utilize the

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teachings of Nagasawa, in regards to the use of the well-known material PTFE in construction of said flexible member, to modify Villanyi, such that any over-stressing caused by expansion of the sealing member is prevented. Furthermore, it would have been obvious to utilize the teachings of Nagasawa, in regards to the modification of PTFE, to provide Villanyi's sealing mechanism with increased seal-ability as well as a lower-coefficient of friction, thereby increasing the service life of the sealing mechanism. In regards to claim 19, Villanyi discloses the use of a plurality of seal mechanisms as claimed; wherein each mechanism includes a retaining member and a flexible member, see Figs. 4-6.

12. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Villanyi *et al.* (U.S. Patent No. 5,009,435) in view of Wada *et al.* (U.S. Patent No. 5,595,697). Villanyi discloses a sealing mechanism substantially as claimed, wherein said sealing mechanism comprises a retaining member. Villanyi does not disclose said retaining member having a plurality of through-holes. Wada discloses a sealing device that teaches the use of reinforcing ring (106) having a plurality of holes (107), see column 1, lines 30-35. It would have been obvious to one having ordinary skill in the art at the time the invention was made, to utilize the teachings of Wada, in regards to a plurality of holes on the retaining member, to facilitate securing of said member.

Response to Arguments

13. Applicant's arguments filed on 6/9/03 have been fully considered but they are not persuasive.

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14. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection. The applicant states that a discussion of the Otto *et al.*, Nagasawa, and Wada *et al.* references is completely unnecessary except to say they illustrate impermissible hindsight. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

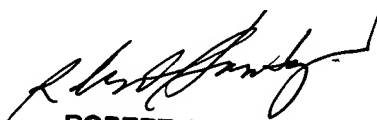
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dinesh N Melwani whose telephone number is 703-305-4546.

The examiner can normally be reached on M-F, 8:30-6 except every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J. J. Swann can be reached on 703-306-4115. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9326 for regular communications and 703-872-9327 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-4115.

DNM
August 23, 2003


ROBERT J. SANDY
PRIMARY EXAMINER